<u>CLAIMS</u>

What is claimed is:

1. A composition comprising a polymer having at least one first monomeric unit having Formula I(a), in Figure 1, wherein:

Ar^1 can be the same or different at each occurrence and is selected from aryl and heteroaryl;

Ar^2 can be the same or different at each occurrence and is selected from arylene and heteroarylene;

R^1 can be the same or different at each occurrence and is selected from H, alkyl, heteroalkyl, aryl, heteroaryl, arylalkylene, heteroarylalkylene, $C_nH_aF_b$, and $C_6H_cF_d$,; or adjacent R^1 groups can be joined to form 5- or 6-membered rings;

n is an integer; and

a, b, c, and d are 0 or an integer such that $a+b = 2n + 1$, and $c + d = 5$.

2. The composition of Claim 1 wherein Ar^1 is selected from phenyl, substituted phenyl, biphenyl, substituted biphenyl, pyridyl, substituted pyridyl, bipyridyl, and substituted bipyridyl.

3. The composition of Claim 1 wherein $N(R^1)_2$ is selected from carbazoles, benzodiazoles, and benzotriazoles.

4. The composition of Claim 1 wherein R^1 is selected from alkyl groups having 1 through 12 carbon atoms, phenyl and benzyl.

5. A composition comprising a polymer having at least one first monomeric unit having Formula II(a) in Figure 2, wherein:

R^2 and R^3 are the same or different at each occurrence and are selected from H, F, Cl, Br, alkyl, heteroalkyl, alkenyl, alkynyl, aryl, heteroaryl, $C_nH_aF_b$, $OC_nH_aF_b$, $C_6H_cF_d$, and $OC_6H_cF_d$;

R^4 is the same or different at each occurrence and is selected from alkylene, heteroalkylene, alkenylene, arylene, or heteroarylene;

a, b, c, and d are 0 or an integer such that $a+b = 2n + 1$, and $c + d = 5$,

n is an integer;

x is 0, 1 or 2; and

y is 0 or an integer from 1 through 3;

with the proviso that there is at least one substituent on an aromatic group selected from F, $C_nH_aF_b$, $OC_nH_aF_b$, $C_6H_cF_d$, and $OC_6H_cF_d$.

6. A composition comprising a polymer having at least one first monomeric unit having Formula II(b) in Figure 2, wherein:

R^2 and R^3 are the same or different at each occurrence and are selected from H, F, Cl, Br, alkyl, heteroalkyl, alkenyl, alkynyl, aryl, heteroaryl, $C_nH_aF_b$, $OC_nH_aF_b$, $C_6H_cF_d$, and $OC_6H_cF_d$;

R^4 is the same or different at each occurrence and is selected from alkylene, heteroalkylene, alkenylene, arylene, or heteroarylene;

a, b, c, and d are 0 or an integer such that $a+b = 2n + 1$, and $c + d = 5$,

n is an integer;

x is 0, 1 or 2; and

y is 0 or an integer from 1 through 3;

with the proviso that there is at least one substituent on an aromatic group selected from F, $C_nH_aF_b$, $OC_nH_aF_b$, $C_6H_cF_d$, and $OC_6H_cF_d$.

7. A composition comprising a polymer having at least one first monomeric unit having Formula II(c) in Figure 2, wherein:

R^2 and R^3 are the same or different at each occurrence and are selected from H, F, Cl, Br, alkyl, heteroalkyl, alkenyl, alkynyl, aryl, heteroaryl, $C_nH_aF_b$, $OC_nH_aF_b$, $C_6H_cF_d$, and $OC_6H_cF_d$;

R^4 is the same or different at each occurrence and is selected from alkylene, heteroalkylene, alkenylene, arylene, or heteroarylene;

a, b, c, and d are 0 or an integer such that $a+b = 2n + 1$, and $c + d = 5$,

n is an integer;

p is 0 or 1; and

y is 0 or an integer from 1 through 3;

with the proviso that there is at least one substituent on an aromatic group selected from F, $C_nH_aF_b$, $OC_nH_aF_b$, $C_6H_cF_d$, and $OC_6H_cF_d$.

8. The composition of any one of Claims 5, 6, or 7, wherein R^2 is selected from phenyl, substituted phenyl, biphenyl, substituted biphenyl, pyridyl, substituted pyridyl, bipyridyl, and substituted bipyridyl.

9. The composition of Claims 5, 6, or 7, wherein R^4 is selected from phenylene, phenylenalkylene, alkylene and alkenylene.

10. A composition comprising a polymer having at least one first monomeric unit having Formula III(a), in Figure 3, wherein:

R^4 is the same or different at each occurrence and is selected from alkylene, heteroalkylene, alkenylene, arylene, or heteroarylene;

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R^5 is the same or different at each occurrence and is selected from H, F, Cl, Br, hydroxyl, carboxyl, carbonyl, silyl, siloxyl, alkyl, heteroalkyl, alkenyl, alkynyl, aryl, heteroaryl, alkylenearyl, alkenylaryl, alkynylaryl, alkyleneheteroaryl, alkenylheteroaryl, alkynylheteroaryl, $C_nH_aF_b$, $OC_nH_aF_b$, $C_6H_cF_d$, and $OC_6H_cF_d$, or both of R^5 together may constitute an arylene or heteroarylene group;

a, b, c, and d are 0 or an integer such that $a+b = 2n + 1$, and $c + d = 5$,

n is an integer; and

z is 0 or an integer from 1 through 4; and wherein such polymer is not a homopolymer.

11. A composition comprising a polymer having at least one first monomeric unit having Formula III(a), in Figure 3, wherein:

R^4 is the same or different at each occurrence and is selected from alkylene, heteroalkylene, alkenylene, arylene, or heteroarylene;

R^5 is the same or different at each occurrence and is selected from H, F, Cl, Br, hydroxyl, carboxyl, carbonyl, silyl, siloxyl, alkyl, heteroalkyl, alkenyl, alkynyl, aryl, heteroaryl, alkylenearyl, alkenylaryl, alkynylaryl, alkyleneheteroaryl, alkenylheteroaryl, alkynylheteroaryl, $C_nH_aF_b$, $OC_nH_aF_b$, $C_6H_cF_d$, and $OC_6H_cF_d$, or both of R^5 together may constitute an arylene or heteroarylene group;

a, b, c, and d are 0 or an integer such that $a+b = 2n + 1$, and $c + d = 5$,

n is an integer; and

x is 0, 1, or 2.

12. The composition of Claims 10 or 11, wherein R^4 is selected from phenylene, phenylenalkylene, alkylene and alkenylene.

13. The composition of Claims 10 or 11, wherein R^5 is selected from phenylalkenyl groups, phenylakynyl groups, alkylacetate groups, arylcarbonyl groups, alkyl groups having 1 through 12 carbon atoms, phenyl groups, substituted phenyl groups, pyridyl groups, and substituted pyridyl groups.

14. The composition of Claims 10 or 11, wherein two adjacent R^5 together are a biarylene group.

15. A material comprising a polymer having at least one first monomeric unit having Formula I, I(a) through I(c) in Figure 1 and at least

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one second monomeric unit selected from Formulae II(a) through II(c) in Figure 2 and Formulae III(a) to III(d) in Figure 3, wherein:

in Formulae I(a) through I(c):

Ar^1 can be the same or different at each occurrence and is selected from aryl and heteroaryl;

Ar^2 can be the same or different at each occurrence and is selected from arylene and heteroarylene;

R^1 can be the same or different at each occurrence and is selected from H, alkyl, heteroalkyl, aryl, heteroaryl, arylalkylene, heteroarylalkylene, $C_nH_aF_b$, and $C_6H_cF_d$,; or adjacent R^1 groups can be joined to form 5- or 6-membered rings;

n is an integer; and

a, b, c, and d are 0 or an integer such that $a+b = 2n + 1$, and $c + d = 5$;

in Formulae II(a) through II(c):

R^2 and R^3 are the same or different at each occurrence and are selected from H, F, Cl, Br, alkyl, heteroalkyl, alkenyl, alkynyl, aryl, heteroaryl, $C_nH_aF_b$, $OC_nH_aF_b$, $C_6H_cF_d$, and $OC_6H_cF_d$;

R^4 is the same or different at each occurrence and is selected from alkylene, heteroalkylene, alkenylene, arylene, or heteroarylene;

a, b, c, and d are 0 or an integer such that $a+b = 2n + 1$, and $c + d = 5$,

n is an integer;

p is 0 or 1;

x is 0, 1 or 2; and

y is 0 or an integer from 1 through 3;

with the proviso that there is at least one substituent on an aromatic group selected from F, $C_nH_aF_b$, $OC_nH_aF_b$, $C_6H_cF_d$, and $OC_6H_cF_d$;

in Formulae III(a) through III(d):

R^4 is the same or different at each occurrence and is selected from alkylene, heteroalkylene, alkenylene, arylene, or heteroarylene;

R^5 is the same or different at each occurrence and is selected from H, F, Cl, Br, hydroxyl, carboxyl, carbonyl, silyl, siloxyl, alkyl, heteroalkyl, alkenyl, alkynyl, aryl, heteroaryl, alkylenearyl, alkenylaryl, alkynylaryl, alkyleneheteroaryl, alkenylheteroaryl, alkynylheteroaryl, $C_nH_aF_b$, $OC_nH_aF_b$, $C_6H_cF_d$, and $OC_6H_cF_d$, or both of R^5 together may constitute an arylene or heteroarylene group;

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a, b, c, and d are 0 or an integer such that $a+b = 2n + 1$, and $c + d$ = 5,

n is an integer;

x is 0, 1, or 2;

y is 0, 1, 2, or 3; and

z is 0 or an integer from 1 through 4.

16. A composition comprising a polymer having at least one first monomeric unit selected from Formulae IV(a) through IV(e) in Figure 4.

17. A composition comprising a polymer having at least one first monomeric unit having Formula IV(f) in Figure 4.

18. An electronic device comprising a composition comprising a polymer having at least one first monomeric unit having Formula I(a), I(b), or I(c), in Figure 1, wherein:

Ar^1 can be the same or different at each occurrence and is selected from aryl and heteroaryl;

Ar^2 can be the same or different at each occurrence and is selected from arylene and heteroarylene;

R^1 can be the same or different at each occurrence and is selected from H, alkyl, heteroalkyl, aryl, heteroaryl, arylalkylene, heteroarylalkylene, $C_nH_aF_b$, and $C_6H_cF_d$; or adjacent R^1 groups can be joined to form 5- or 6-membered rings;

n is an integer;

y is 0, 1, 2, or 3;

z is 0, 1, 2, 3, or 4; and

a, b, c, and d are 0 or an integer such that $a+b = 2n + 1$, and $c + d$ = 5.

19. The device of Claim 18 wherein Ar^1 is selected from phenyl, substituted phenyl, biphenyl, substituted biphenyl, pyridyl, substituted pyridyl, bipyridyl, and substituted bipyridyl.

20. The device of Claim 18 wherein $N(R^1)_2$ is selected from carbazoles, benzodiazoles, and benzotriazoles.

21. The device of Claim 18 wherein R^1 is selected from alkyl groups having 1 through 12 carbon atoms, phenyl and benzyl.

22. An electronic device comprising a composition comprising a polymer having at least one first monomeric unit having Formula II(a) in Figure 2, wherein:

R^2 and R^3 are the same or different at each occurrence and are
   selected from H, F, Cl, Br, alkyl, heteroalkyl, alkenyl, alkynyl,
   aryl, heteroaryl, $C_nH_aF_b$, $OC_nH_aF_b$, $C_6H_cF_d$, and $OC_6H_cF_d$;
R^4 is the same or different at each occurrence and is selected from
5   alkylene, heteroalkylene, alkenylene, arylene, or heteroarylene;
a, b, c, and d are 0 or an integer such that a+b = 2n + 1, and c + d
   = 5,
n is an integer;
x is 0, 1 or 2; and
10   y is 0 or an integer from 1 through 3;
      with the proviso that there is at least one substituent on an aromatic
group selected from F, $C_nH_aF_b$, $OC_nH_aF_b$, $C_6H_cF_d$, and $OC_6H_cF_d$.
      23. An electronic device comprising a composition comprising a
polymer having at least one first monomeric unit having Formula II(b) in
15   Figure 2, wherein:
R^2 and R^3 are the same or different at each occurrence and are
   selected from H, F, Cl, Br, alkyl, heteroalkyl, alkenyl, alkynyl,
   aryl, heteroaryl, $C_nH_aF_b$, $OC_nH_aF_b$, $C_6H_cF_d$, and $OC_6H_cF_d$;
R^4 is the same or different at each occurrence and is selected from
20   alkylene, heteroalkylene, alkenylene, arylene, or heteroarylene;
a, b, c, and d are 0 or an integer such that a+b = 2n + 1, and c + d
   = 5,
n is an integer;
x is 0, 1 or 2; and
25   y is 0 or an integer from 1 through 3;
      with the proviso that there is at least one substituent on an aromatic
group selected from F, $C_nH_aF_b$, $OC_nH_aF_b$, $C_6H_cF_d$, and $OC_6H_cF_d$.
      24. An electronic device comprising a composition comprising a
polymer having at least one first monomeric unit having Formula II(c) in
30   Figure 2, wherein:
R^2 and R^3 are the same or different at each occurrence and are
   selected from H, F, Cl, Br, alkyl, heteroalkyl, alkenyl, alkynyl,
   aryl, heteroaryl, $C_nH_aF_b$, $OC_nH_aF_b$, $C_6H_cF_d$, and $OC_6H_cF_d$;
R^4 is the same or different at each occurrence and is selected from
35   alkylene, heteroalkylene, alkenylene, arylene, or heteroarylene;
a, b, c, and d are 0 or an integer such that a+b = 2n + 1, and c + d
   = 5,
n is an integer;

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p is 0 or 1; and

y is 0 or an integer from 1 through 3;

with the proviso that there is at least one substituent on an aromatic group selected from F, $C_nH_aF_b$, $OC_nH_aF_b$, $C_6H_cF_d$, and $OC_6H_cF_d$.

25. The device of any one of Claims 22, 23, or 24, wherein R^2 is selected from phenyl, substituted phenyl, biphenyl, substituted biphenyl, pyridyl, substituted pyridyl, bipyridyl, and substituted bipyridyl.

26. The device of Claims 22, 23, or 24, wherein R^4 is selected from phenylene, phenylenalkylene, alkylene and alkenylene.

27. An electronic device comprising a composition comprising a polymer having at least one first monomeric unit having Formula III(a), in Figure 3, wherein:

R^4 is the same or different at each occurrence and is selected from alkylene, heteroalkylene, alkenylene, arylene, or heteroarylene;

R^5 is the same or different at each occurrence and is selected from H, F, Cl, Br, hydroxyl, carboxyl, carbonyl, silyl, siloxyl, alkyl, heteroalkyl, alkenyl, alkynyl, aryl, heteroaryl, alkylenearyl, alkenylaryl, alkynylaryl, alkyleneheteroaryl, alkenylheteroaryl, alkynylheteroaryl, $C_nH_aF_b$, $OC_nH_aF_b$, $C_6H_cF_d$, and $OC_6H_cF_d$, or both of R^5 together may constitute an arylene or heteroarylene group;

a, b, c, and d are 0 or an integer such that a+b = 2n + 1, and c + d = 5,

n is an integer; and

z is 0 or an integer from 1 through 4.

28. An electronic device comprising a composition comprising a polymer having at least one first monomeric unit having Formulae III(b) to III(d), in Figure 3, wherein:

R^4 is the same or different at each occurrence and is selected from alkylene, heteroalkylene, alkenylene, arylene, or heteroarylene;

R^5 is the same or different at each occurrence and is selected from H, F, Cl, Br, hydroxyl, carboxyl, carbonyl, silyl, siloxyl, alkyl, heteroalkyl, alkenyl, alkynyl, aryl, heteroaryl, alkylenearyl, alkenylaryl, alkynylaryl, alkyleneheteroaryl, alkenylheteroaryl, alkynylheteroaryl, $C_nH_aF_b$, $OC_nH_aF_b$, $C_6H_cF_d$, and $OC_6H_cF_d$, or both of R^5 together may constitute an arylene or heteroarylene group;

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a, b, c, and d are 0 or an integer such that a+b = 2n + 1, and c + d
= 5,

n is an integer;

x is 0, 1, or 2;

y is 0, 1, 2, or 3; and

z is 0, 1, 2, 3, or 4.

29. The device of Claims 27 or 28, wherein R^4 is selected from
phenylene, phenylenalkylene, alkylene and alkenylene.

30. The device of Claims 27 or 28, wherein R^5 is selected from
phenylalkenyl groups, phenylakynyl groups, alkylacetate groups,
arylcarbonyl groups, alkyl groups having 1 through 12 carbon atoms,
phenyl groups, substituted phenyl groups, pyridyl groups, and substituted
pyridyl groups.

31. The composition of Claims 27 or 28, wherein two adjacent R^5
together are a biarylene group.

32. An electronic device comprising a material comprising a
polymer having at least one first monomeric unit having Formulae I(a)
through I(c) in Figure 1 and at least one second monomeric unit selected
from Formulae II(a) through II(c) in Figure 2 and Formulae III(a) through
III(d) in Figure 3, wherein:

in Formula I(a) through I(c):

Ar^1 can be the same or different at each occurrence and is selected
from aryl and heteroaryl;

Ar^2 can be the same or different at each occurrence and is selected
from arylene and heteroarylene;

R^1 can be the same or different at each occurrence and is selected
from H, alkyl, heteroalkyl, aryl, heteroaryl, arylalkylene,
heteroarylalkylene, $C_nH_aF_b$, and $C_6H_cF_d$,; or adjacent R^1
groups can be joined to form 5- or 6-membered rings;

n is an integer;

y is 0, 1, 2, or 3;

z is 0, 1, 2, 3, or 4; and

a, b, c, and d are 0 or an integer such that a+b = 2n + 1, and c + d
= 5;

in Formulae II(a) through II(c):

R^2 and R^3 are the same or different at each occurrence and are
selected from H, F, Cl, Br, alkyl, heteroalkyl, alkenyl, alkynyl,
aryl, heteroaryl, $C_nH_aF_b$, $OC_nH_aF_b$, $C_6H_cF_d$, and $OC_6H_cF_d$;

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R^4 is the same or different at each occurrence and is selected from
   alkylene, heteroalkylene, alkenylene, arylene, or heteroarylene;

a, b, c, and d are 0 or an integer such that a+b = 2n + 1, and c + d
   = 5,

5   n is an integer;

p is 0 or 1;

x is 0, 1 or 2; and

y is 0 or an integer from 1 through 3;

with the proviso that there is at least one substituent on an aromatic

10   group selected from F, $C_nH_aF_b$, $OC_nH_aF_b$, $C_6H_cF_d$, and $OC_6H_cF_d$;

   <u>in Formulae III(a) through III(d):</u>

R^4 is the same or different at each occurrence and is selected from
   alkylene, heteroalkylene, alkenylene, arylene, or heteroarylene;

R^5 is the same or different at each occurrence and is selected from

15   H, F, Cl, Br, hydroxyl, carboxyl, carbonyl, silyl, siloxyl, alkyl,
   heteroalkyl, alkenyl, alkynyl, aryl, heteroaryl, alkylenearyl,
   alkenylaryl, alkynylaryl, alkyleneheteroaryl, alkenylheteroaryl,
   alkynylheteroaryl, $C_nH_aF_b$, $OC_nH_aF_b$, $C_6H_cF_d$, and $OC_6H_cF_d$,
   or both of R^5 together may constitute an arylene or

20   heteroarylene group;

a, b, c, and d are 0 or an integer such that a+b = 2n + 1, and c + d
   = 5,

n is an integer;

x is 0, 1, or 2;

25   y is 0, 1, 2, or 3; and

z is 0 or an integer from 1 through 4.

   33. An electronic device comprising a composition comprising a
polymer having at least one first monomeric unit selected from Formulae
IV(a) through IV(e) in Figure 4.

30   ·   34. An electronic device comprising a composition comprising a
polymer having at least one first monomeric unit having Formula IV(f) in
Figure 4.

   35. A composition comprising a polymer having at least one first
monomeric unit having Formula I(b) or I(c) in Figure 1, wherein:

35   Ar^1 can be the same or different at each occurrence and is selected
   from aryl and heteroaryl;

Ar^2 can be the same or different at each occurrence and is selected
   from arylene and heteroarylene;

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R^5 is the same or different at each occurrence and is selected from H, F, Cl, Br, hydroxyl, carboxyl, carbonyl, silyl, siloxyl, alkyl, heteroalkyl, alkenyl, alkynyl, aryl, heteroaryl, alkylenearyl, alkenylaryl, alkynylaryl, alkyleneheteroaryl, alkenylheteroaryl, alkynylheteroaryl, $C_nH_aF_b$, $OC_nH_aF_b$, $C_6H_cF_d$, and $OC_6H_cF_d$, or both of R^5 together may constitute an arylene or heteroarylene group;

a, b, c, and d are 0 or an integer such that $a+b = 2n + 1$, and $c + d = 5$,

n is an integer (as above);

y is 0 or an integer from 1 through 3;

z is 0 or an integer from 1 through 4; and

wherein such polymer is not a homopolymer.

36. A composition comprising a polymer having at least one first monomeric unit having Formula III(c) or III(d) in Figure 3, wherein:

R^4 is the same or different at each occurrence and is selected from alkylene, heteroalkylene, alkenylene, arylene, heteroarylene or arylenealkynylene;

R^5 is the same or different at each occurrence and is selected from H, F, Cl, Br, hydroxyl, carboxyl, carbonyl, silyl, siloxyl, alkyl, heteroalkyl, alkenyl, alkynyl, aryl, heteroaryl, alkylenearyl, alkenylaryl, alkynylaryl, alkyleneheteroaryl, alkenylheteroaryl, alkynylheteroaryl, $C_nH_aF_b$, $OC_nH_aF_b$, $C_6H_cF_d$, and $OC_6H_cF_d$, or both of R^5 together may constitute an arylene or heteroarylene group;

a, b, c, and d are 0 or an integer such that $a+b = 2n + 1$, and $c + d = 5$,

n is an integer;

x is 0, 1, or 2;

y is 0 or an integer from 1 through 3; and

wherein such polymer is not a homopolymer.

37. A composition comprising a polymer having at least one first monomeric unit having Formula III(b), wherein:

R^4 is the same or different at each occurrence and is selected from alkylene, heteroalkylene, alkenylene, arylene, heteroarylene or arylenealkynylene;

R^5 is the same or different at each occurrence and is selected from H, F, Cl, Br, hydroxyl, carboxyl, carbonyl, silyl, siloxyl, alkyl,

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heteroalkyl, alkenyl, alkynyl, aryl, heteroaryl, alkylenearyl, alkenylaryl, alkynylaryl, alkyleneheteroaryl, alkenylheteroaryl, alkynylheteroaryl, $C_nH_aF_b$, $OC_nH_aF_b$, $C_6H_cF_d$, and $OC_6H_cF_d$, or both of R^5 together may constitute an arylene or

5   heteroarylene group;

a, b, c, and d are 0 or an integer such that a+b = 2n + 1, and c + d = 5,

n is an integer;

x is 0, 1, or 2; and

10   wherein such polymer is not a homopolymer.

37. A device comprising a layer of material comprising the polymer of Claims 35, 36, or 37.

38. A device according to Claims 18, 35, 36, and 37, wherein the device is a light-emitting diode, light-emitting electrochemical cell, or a

15 photodetector.